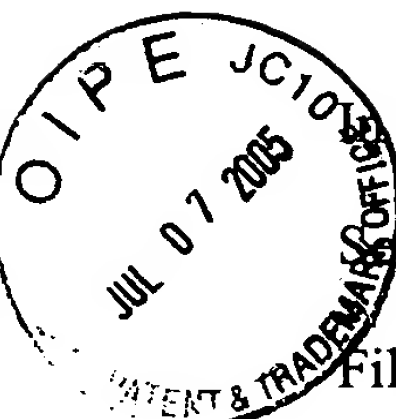


ATTORNEY DOCKET NO.
11321-P014US

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Re application of: Smalley, et al.

Serial No.: 09/935,995

Filing Date: August 23, 2001

Art Unit: 1773

Title: *Polymer-Wrapped Single Wall Carbon Nanotubes*

Mail Stop: Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

**FOURTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37
C.F.R. § 1.97(b)**

Applicant hereby submits the following references in accordance with 37 C.F.R. §§ 1.56, 1.97 and 1.98. Copies of the references cited in the attached PTO/SB/08A and PTO/SB/08B are enclosed for the examiner's reference. Furthermore, pursuant to 37 C.F.R. § 1.97(g) and (h), no representation is made that this is material to patentability of the present application or that a search has been made.

Applicant hereby submits that claims of Applicant's referenced patent application are patentably distinguishable from these references.

Applicant has enclosed a check for \$180.00; however, the Director of Patents and Trademarks is hereby authorized to charge any other necessary fees relating to this Fourth Supplemental Information Disclosure Statement under 37 CFR § 1.17 to Deposit Account No 23-2426 of WINSTEAD SECHREST & MINICK P.C. (referencing matter 11321-P014US).

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Date:

6/28/05

Respectfully submitted,

Ross Spencer Garsson
Regis No. 38,150

WINSTEAD SECHREST & MINICK P.C.
P.O. Box 50784
Dallas, Texas 75201
Phone: (512) 370-2870
Fax: (214) 745-5390

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

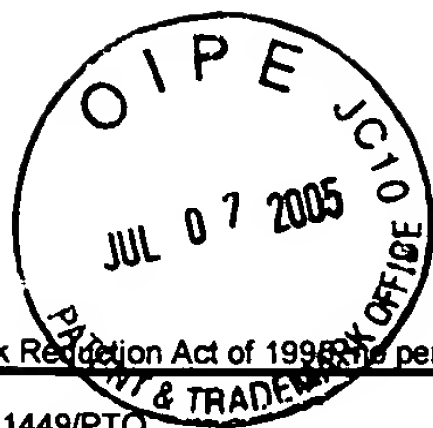
I hereby certify that the attached *Fourth Supplemental Information Disclosure Statement* and cited art are being deposited with the USPS, first class mail, with sufficient postage, addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this the 28th day of June, 2005.

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793627v.1 11321/P014US



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Application Number	09/935,995
Filing Date	August 23, 2001
First Named Inventor	Smalley, et al.
Art Unit	1773
Examiner Name	Hoa T. Le
Attorney Docket Number	11321-P014US

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	1	US- 5,560,898	10/01/96	Uchida, et al.	
	2	US- 5,653,996	08/05/97	Hsu	
	3	US- 6,183,714	02/06/01	Smalley, et al.	
	4	US- 6,250,984	06/26/01	Jin, et al.	
	5	US- 6,322,713	11/27/01	Choi, et al.	
	6	US- 6,333,598	12/25/01	Hsu, et al.	
	7	US- 6,623,337	09/23/03	Scott, et al.	
	8	US- 6,712,864	03/30/04	Horiuchi, et al.	
	9	US- 2002/0150529	10/17/02	Dillon, et al.	
	10	US- 60/227,184	08/23/00	Kuper	
	11	US- 60/268,228	02/12/01	Smalley, et al.	
	12	US- 60/284,419	04/17/02	Hauge, et al.	
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FOREIGN PATENT DOCUMENTS

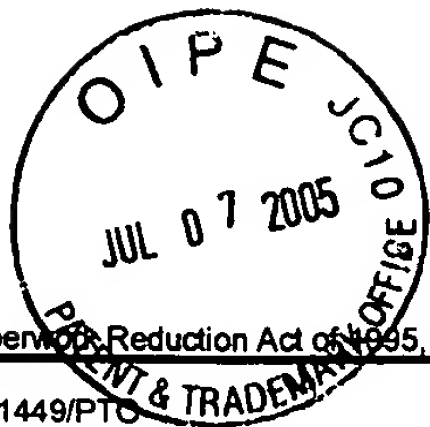
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		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	13	WO 00/17102	03/30/2000	Smalley, et al.		
	14	WO 00/17101	03/30/2000	Margrave, et al.		
	15	WO 00/26138	05/11/2000	Smalley, et al.		
	16	WO 98/39250	09/11/98	Smalley, et al.		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known	
				Application Number	09/935,995
				Filing Date	August 23, 2001
				First Named Inventor	Smalley, et al.
				Art Unit	1773
				Examiner Name	Hoa T. Le
Sheet	2	of	5	Attorney Docket Number	11321-P014US

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	17	Ajayan et al., "Growth morphologies during cobalt catalyzed single-shell carbon nanotube synthesis," Chem. Phys. Lett., Vol. 215, p. 509 (1993)	
	18	Ausman, et al. , "Organic solvent dispersions of single-walled carbon nanotubes...", 104 J. Phys. Chem. B (2000), pp. 8911	
	19	Bethune et al., "Cobalt catalyzed growth of carbon nanotubes with single atomic layer walls," Nature, Vol. 63, p. 605 (1993)	
	20	Boul, et al., "Reversible sidewall functionalization of buckytubes" 310 Chem. Phys. Lett. (1999), pp. 367-372	
	21	Chen, J. et al., "Solution properties of single-walled carbon nanotubes", 282 Science (1998), pp. 95-98	
	22	Dresselhaus, G. et al., Science of Fullerenes and Carbon Nanotubes, Chap. 19, (1996), pp. 756-760	
	23	Ebbesen et al. "Large-scale synthesis of carbon nanotubes," 358 Nature, (July 16, 1992), pp. 220-222	
	24	Ebbesen et al., "Carbon Nanotubes," 24 Annual Review of Materials Science (1994), pp. 235-264	
	25	Girifalco, et al., "Carbon nanotubes, buckyballs, ropes, and a universal graphitic potential", 62 Physical Review B (2000), pp. 13104-13110	
	26	Hertel et al., "Manipulation of individual carbon nanotubes and their interaction with surfaces", 102 J. Phys. Chem. B (1998), pp. 910-915	

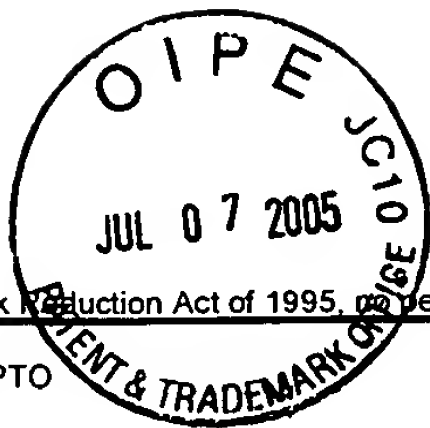
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First Named Inventor	Smalley, et al.
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Attorney Docket Number	11321-P014US

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	27	Hone, et al., "Electrical and thermal transport properties of magnetically aligned single wall carbon nanotube films", 77 Appl. Phys. Lett. (2000), pp. 666-668	
	28	Iijima et al., "Helical microtubules of graphitic carbon," 354 Nature (November 7, 1991), pp. 56-58	
	29	Iijima et al., "Single-shell carbon nanotubes of 1 nm diameter," 363 Nature (1993), pp.603-605	
	30	Jing-Kong et al., " Nanotube Molecular Wires as Chemical Sensors", 287 Science (2000), pp. 622	
	31	Lagarkov, et al. "Electromagnetic properties of composites containing elongated conducting inclusions", 53 Phys. Rev. B 10 (1996), p. 6318-6336	
	32	Lambert et al., "Improving conditions toward isolating single-shell carbon nanotubes," 266 Chem. Phys. Lett.(1994), pp. 364-371	
	33	Lee et al, "Observation of magnetic-field-modulated energy gap in carbon nanotubes", 115 Solid State Communications (2000), p. 467-471	
	34	Liu, et al., "Controlled deposition of individual single-walled carbon nanotubes on chemically functionalized templates", 303 Chem. Phys. Lett. (1999), pp. 125-129	
	35	Nikolaev, et al., "Gas-phase catalytic growth of single-walled carbon nanotubes..." 313 Chem. Phys. Lett. (1999), pp. 91-97	

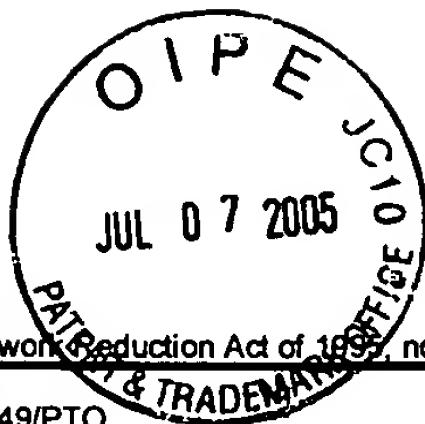
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	36	Odom et al, "Structure and electronic properties of carbon nanotubes", 104 J. Phys. Chem B (2000), pp. 2794-2809	
	37	Riggs et al., "Optical limiting properties of suspended and solubilized carbon nanotubes", 104 J. Phys. Chem B (2000), pp. 7071-7076	
	38	Rinzler, "Large-scale purification of single-wall carbon nanotubes: process, product and characterization," 67 Applied Physics A (1998), pp. 29-237	
	39	Saito et al., "Carbon nanocapsules encaging metals and carbides," 54 J. Phys. Chem. Solids (1993), pp. 1849-1860	
	40	Saito et al., "Extrusion of single-wall carbon nanotubes via formation of small particles condensed near an evaporation source," 236 Chem. Phys. Lett. (1995), pp. 419-428	
	41	Seraphin et al., "Single-walled tubes and encapsulation of nanocrystals into carbon clusters," 142 J. Electrochem. Soc. (1995), pp. 290-293	
	42	Shaffer et al., "Fabrication and characterization of carbon nanotube/poly(vinyl alcohol) composites", 11 Adv. Mat 11 (1999), pp. 937-941	
	43	Slepyan et al.' "Electronic and electromagnetic properties of nanotubes", 57 Phys. Rev. B (1998), pp. 9485-9497	
	44	Smith, et al., "Structural anisotropy of magnetically aligned single wall carbon nanotube films", 77 Appl. Phys. Lett. (2000), pp. 665-663	
	45	Tans, et al., "Individual single-wall carbon nanotubes as quantum wires", 386 Nature (1997), pp. 474-477	

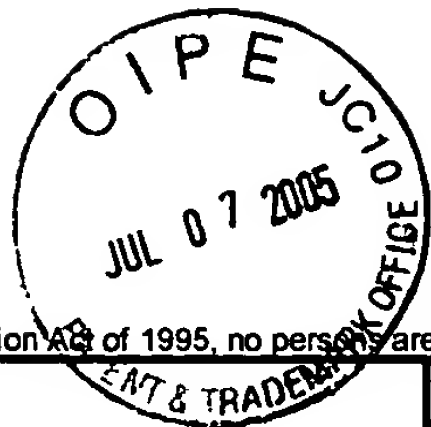
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	46	Tohji, K., "Extraction of exotic fullerenes and purification of single-walled nanotubes", 7 Fullerene Science & Technol. 4 (1999), pp. 665-679	
	47	Venema, et al., "Imaging electron wave functions of quantized energy levels in carbon nanotubes", 283 Science (1999), pp. 52-55	
	48	Yakobson and Smalley, "Fullerene nanotubes: C1,000,000 and beyond", 85 Am. Sci.(1997), pp. 324-337	
	49	Zhou et al., "Single-walled carbon nanotubes growing radially from YC2 particles," 65 Appl. Phys. Lett. 12 (1994), pp. 1593-1595	

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